**This document outlines the TKBio workflow as a series of KSAPI calls**

# Discover a list of candidate concepts

**Input:** URL encoded string of keywords to match against the canonical or aliases of a concept

**Output:** (paged) list of matching concepts from all KS’s supporting the API call

**Variants:** Additional keywords and semantic type filters can constrain the list; results are batched as pages

**API endpoint:**

GET /concepts?q=*<keyword1>&*q=*<keyword2>…&*q=*<keywordn>*

# User selects a concept to get at a table of all its relationships

## System identifies equivalent concepts identifiers across KS’s

### Given a concept, return all associated cross references

**Input:** A specified globally unique user-selected concept identifier

**Output:** List of cross-references associated with the concept

**API endpoint:**

GET /xref/*{conceptId}*

### Given a list of qualified cross-references (e.g. output from II.A.1 above), return equivalent concepts

Concept equivalency is discerned through matches with at least one of the input cross-references, either to the primary identifier of the concept or its associated cross references. Concepts are also returned with their associated cross-references, to allow iterative discovery of equivalent concepts using this API call.

**Input:** List of 1..n cross-references associated with a user selected concept

**Output:** List of all other concepts with matching cross-references

**API endpoint:**

GET /xref?xi=*<xref1>&*xi=*<xref2>…&*xi=*<xrefn>*

### Iterative discover of the equivalent concept clique

The lists of cross-references from II.A.3 above are consolidated into a union set and identifiers that were already initially run are subtracted from the resulting set, then the difference set of identifiers are used in iterative calls to II.A.2 until the resulting “equivalent concept” identifier clique ceases to expand, suggestive of a complete clique (to the extent known by the available KS’s)

## Set of equivalent concepts are used to retrieve related statements.

**Input:** “Equivalence clique” of 1..m concept identifiers (‘cid’ from II.A.3 above)

**Output:** List of matching subject-predicate statements

**API endpoint:**

GET /statements?ci=*<cid1>&*ci=*<cid2>…&*ci=*<cidm>*

# User requests details about a specific concept

**Input:** A specified globally unique user-selected concept identifier

**Output:** A more complete report of properties of the concept

**API endpoint:**

GET /concepts/*{conceptId}*

# User selects a specific statement to get at evidence

**Input:** The evidenceId associated with a given statement (from the output of II.B)

**Output:** A list of citation references supporting the statement

**API endpoint:**

GET /evidence/*{evidenceId}*